

What is claimed is:

1. A high speed interface type semiconductor memory device,
comprising:

5 a DRAM module unit constructed and arranged to generate a strobe
clock signal for synchronizing a data signal during a read operation in a
DRAM farthest from a controller among a plurality of DRAMs, provide the
strobe clock signal to the other DRAMs, and transmit data to the controller
during the read operation; and

10 a controller constructed and arranged to transmit a clock signal and
data signals synchronized with the clock signal to the plurality of DRAMs,
and receive data signals from the DRAMs.

15 2. The device according to claim 1, wherein each DRAM
comprises:

a first buffer constructed and arranged to receive main clock and clock
bar signals from the controller;

20 a second buffer constructed and arranged to buffer a first internal
clock signal obtained by delay locking the main clock signal according to a
control signal, and output data strobe clock and clock bar signals;

a third buffer constructed and arranged to buffer and output the data
strobe clock and clock bar signals according to the control signal;

25 a DLL unit constructed and arranged to receive the output signal from
the first buffer and the output signal from the third buffer, and output the first
internal clock and clock bar signals, second internal clock and clock bar
signals obtained by 90° phase-shifting the first internal clock and clock bar
signals, third internal clock and clock bar signals, and fourth internal clock
and clock bar signals obtained by 90° phase-shifting the third internal clock
and clock bar signals;

30 a first multiplexer unit constructed and arranged to selectively

transmit the first internal clock and clock bar signals or the third internal clock and clock bar signals according to the control signal;

a second multiplexer unit constructed and arranged to selectively transmit the second internal clock and clock bar signals or the fourth internal clock and clock bar signals according to the control signal;

a read first-in first-out unit constructed and arranged to synchronize and output a 4 bit read data according to the output signals from the first and second multiplexer units;

a fourth buffer connected between the read first-in first-out unit and a DQ pad;

a fifth buffer constructed and arranged to receive a write data inputted through the DQ pad; and

a write first-in first-out unit constructed and arranged to receive the output signal from the fifth buffer, synchronize the output signal according to the first internal clock and clock bar signals and the second internal clock and clock bar signals, and output a 4 bit write data.

3. The device according to claim 1, wherein the first internal clock and clock bar signals and the third internal clock and clock bar signals are delay locked signals by the DLL unit receiving the main clock and clock bar signals.